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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/711,177	11/13/2000	James M. Clark	0918.0040C	6600
7590 11/19/2004			EXAMINER	
Epstein Edell Shapiro & Finnan LLC 1901 Research Boulevard Suite 400 Rockville, MD 20850-3164			ZHENG, EVA Y	
			ART UNIT	PAPER NUMBER
			2634	

DATE MAILED: 11/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/711,177

Applicant(s)

CLARK, JAMES M.

Examiner

Eva Yi Zheng

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-20, 27, 33, 34 and 37-42 is/are allowed.
- 6) ☒ Claim(s) 1, 5-9, 12, 15, 16, 24-26, 28, 29, 32, 35 is/are rejected.
- 7) ☒ Claim(s) 11 and 36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/28/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-42 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 28, 29 and 32 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are directed to non-functional descriptive material. The claims recite the structure of a data signal and have no functionality or useful result. The claims are not directed to a practical application of the data signal.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 35 is rejected under 35 U.S.C. 102(b) as unpatentable by being Miller et al. (4,537,502).

Regarding claim 35, Miller et al. disclose a method of determining the phase of a transmitted code generated by combining at least a first code and a second code, comprising:

- detecting a phase of the first code (145 in Fig. 4B);
- detecting a phase of the second code (147 in Fig. 4B); and
- determining the phase of the transmitted code from the phases of the first and second codes using the Chinese Remainder Theorem (149 in Fig. 4B; Col 1, L30-33).

6. Claim 35 is rejected under 35 U.S.C. 102(b) as unpatentable by being Eddy et al. (5,189,420).

Regarding claim 35, Eddy et al. disclose a method of determining the phase of a transmitted code generated by combining at least a first code and a second code, comprising:

- detecting a phase of the first code (60 in Fig. 2);
- detecting a phase of the second code (60 in Fig. 2); and
- determining the phase of the transmitted code from the phases of the first and second codes using the Chinese Remainder Theorem ("digital residue format" in Fig. 2; Col 3, L47-63).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 5-9, 12, 15, 16 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozluturk (US RE38,523 E).

a) Regarding claims 1, 15 and 24, Ozluturk discloses a code generating apparatus/method, comprising:

- a first code generator generating a first code of  $n$  symbols (Col 5, L 5-15);
- a second code generator generating a second code of  $m$  symbols (Col 5, L5-15);
- a multiplexer that interleaved the symbols generated by the first and second code generators to generate an interleaved code from which both first and second codes can be detected (Col 5, L5-20).

Ozluturk discloses all of the subjects above except for the specific teaching of symbol:  $m=n+1$ . Although Ozluturk doesn't specifically disclose " $m=n+1$ ", such limitation is merely a matter of design choice and would have been obvious in the system of Ozluturk. Ozluturk teaches fast acquisition in spread spectrum signal system, wherein two or more short codes are combined to produce a long code. The limitation in claims 1 do not define a patentably distinct invention over that in Ozluturk since both invention as a whole and Ozluturk are directed to combine two or more short codes for producing a long code. The number of symbol sequences or short code sequences for interleaving is inconsequential for the invention as a whole and presents no new or unexpected results, so long as two short codes interleaving a long code. Therefore, to

have symbols  $m=n+1$  in Ozluturk would have been a matter of obvious design choice to one of ordinary skill in the art.

b) Regarding claims 5, 16 and 25, Ozluturk discloses the first and second codes are pseudonoise codes ("CDMA" background).

c) Regarding claim 6, Ozluturk discloses the code generating apparatus of claim 1, wherein the multiplexer interleaves the symbols of the first and second codes in a chip by chip manner, and wherein the symbols are comprised of chips (Col 5, L5-20).

d) Regarding claim 8, Ozluturk discloses the code generating apparatus of claim 1, wherein each symbol represents a binary value (Col 5, L5-20).

e) Regarding claim 9, Ozluturk discloses a method of generating a combined code comprising:

a) combining a plurality of codes each having a length shorter than the combined code, the plurality of codes including at least three codes having lengths  $m$ ,  $n$ , and  $P$  (Col 5, L5-20), and

b) outputting the combined code (Col 5, L5-20),  
wherein the plurality of codes can be detected from the combined code,  
and the phase of the combined code can be detected from the plurality of codes (Col 5, L5-20).

Ozluturk discloses all of the subjects above except for the specific teaching of  $m$ ,  $n$ , and  $p$  are mutually prime. Although Ozluturk doesn't specifically disclose " $m$ ,  $n$ , and  $p$  are mutually prime", such limitation is merely a matter of design choice and would have been obvious in the system of Ozluturk. Ozluturk teaches fast acquisition in spread

spectrum signal system, wherein two or more short codes are combined to produce a long code. The limitation in claims 1 do not define a patentably distinct invention over that in Ozluturk since both invention as a whole and Ozluturk are directed to combine two or more short codes for producing a long code. The number of symbol sequences or short code sequences for interleaving is inconsequential for the invention as a whole and presents no new or unexpected results, so long as two short codes interleaving a long code. Therefore, to have symbols mutually prime in Ozluturk would have been a matter of obvious design choice to one of ordinary skill in the art.

f) Regarding claim 12, Ozluturk discloses the method of generating a combined code according to claim 9, wherein symbols of the plurality of codes are interleaved (Col 5, L5-20).

g) Regarding claim 26, Ozluturk discloses the transmitter according to claim 24, wherein the symbols of the first code are generated in order, modulo  $n$ , and the symbols of the second code are generated in order, modulo  $m$  (Col 5, L5-20).

h) Regarding claim 7, Ozluturk discloses all of the subjects described above except for the specific teaching of a multiplexer coupled to the first and second code generators. However, it is well known a multiplexer is used for interleaving codes in digital communication systems. Therefore, it is obvious to one of ordinary skill in the art to understand that a multiplexer must be coupled to the first and second short code in order to interleave and produce a long code. By doing so, achieve faster and better acquisition and signal tracking in spread spectrum systems.

***Allowable Subject Matter***

9. Claims 11 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claims 17-20, 27, 33, 34, 37-42 are allowed.

11. The following is an examiner's statement of reasons for allowance:

None of the prior art teaches or suggest a first signal generator generating a first symbol  $n$ , a second signal generator generating a second symbol  $m$ , where  $m$  is equal to  $n$  plus 1. A multiplexer interleaves the first and second symbols to generated a third symbol with repetition of  $2*n*m$  times. .

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Yi Zheng whose telephone number is (571) 272-3049. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-879-9306.



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**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**


**(703) 872-9314 (for Technology Center 2600 only)**

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Eva Yi Zheng  
Examiner  
Art Unit 2634

November 5, 2004

  
**SHUWANG LIU**  
**PRIMARY EXAMINER**